(d) A system is eligible for an EUO license if, instead of or in addition to paragraphs (b) or (c) of this section, failure of that system would create an **imminent danger** to the public safety.

§ 88.195 Temporary licensing freeze.

(a) To facilitate the process of obtaining an EUO license, a licensee may apply (on the same day) to the Commission and an appropriate frequency coordinator to **suspend further licensing** of base stations on a specific frequency within 80 km. (50 miles) of a specific site for a **120 day** period. Applications are handled on a first-come, first-served basis. The freeze will commence on the day that the Commission processes the freeze application. Unless a new freeze is granted, on the day following the expiration of the freeze, pending applications blocked by the freeze may be granted.

(b) A temporary licensing freeze will only be granted if there is **at least one preferred existing licensee** on the appropriate channel with base stations within 80 km. (50 miles).

§ 88.199 Grant of temporary licensing freeze.

The Commission will grant an application for a temporary licensing freeze (see § 88.183 for limitations of the freeze) in the 150-174 MHz or 450-470 MHz bands provided that all of the following are satified:

(a) The applicant is **eligible** to use the frequencies applied for;

(b) Those **frequencies are available** for exclusive assignment (see § 88.179);

(c) The application includes statements of written **concurrence** from either

(1) at least half the preferred existing licensees licensed 30 days before the application was filed (see § 88.187) on the appropriate channel with base stations within 80 km (50 mi), or

(2) preferred existing licensees on the appropriate channel with base stations within 80 km (50 mi) with a total of at least half the overall number of mobiles licensed 30 days before the application was filed on the same frequencies in the same geographic area.

§ 88.207 Additional channels, spectrum efficiency standards, and EUO.

(a) EUO licenses granted pursuant to § 88.191(b) will be conditioned on the following: **if the licensee obtains additional channels** or additional base station sites in any band under Subpart D **within 25 km.** (15.5 miles) of the base station covered by the EUO license, the EUO system must meet the **spectrum efficiency standard** within 6 months of the construction deadline for the additional channels or additional base stations.

(b) For purposes of this section, any base station managed or licensed by a system manager for the EUO licensed system will be treated as if licensed to the EUO licensee.

(c) Any base/channel failing to meet the provisions of (a) **automatically cancels**.

§ 88.211 Exclusive use in the 220-222 MHz band.

Except for nationwide assignments, the separation of co-channel base stations must be at least **120 kilometers** (75 miles). Shorter separations will be considered on a case-by-case basis upon submission of a technical analysis indicating that at least a 10 dB protection will be provided to an existing station's 38 dBu signal level contour.

§ 88.215 SMR-only frequencies above 800 MHz.

Systems authorized on frequencies in the 806-821/851-866 MHz and 896-901/935-940 MHz bands in the SMRS Category will be afforded protection solely on the basis of fixed mileage separation criteria. Only co-channel interference between base station operations will be taken into consideration. Adjacent channel and other types of possible interference will not be taken into account. The ordinary separation between co-channel systems will be **113 km** (70 miles), except:

(a) Except as indicated in paragraph (d) of this section, no trunked system will be less than 169 km (105 miles) distant from co-channel trunked systems authorized 1 kw ERP on any of the following mountain top sites: Santiago Peak, Sierra Peak, Mount Lukens, Mount Wilson (**California**).

(b) The separation between certain co-channel trunked systems located at high antenna sites in the **State of California north** of 35° North Latitude and west of 118° West Longitude will be determined as follows:

(1) Required co-channel separations between common antenna sites are given by Table B-1. A channel group assigned to a station on a site listed in the vertical column may not be re-assigned to a station on a site listed in the horizontal column if there is an "X" in the box created by the intersection of the vertical and horizontal lines. The geographic coordinates listed in the table represent an average for each particular site; all locations within one mile of the coordinates will be considered to be at that site.

(2) Required co-channel separations involving antenna sites not listed in Table B-1 will be determined by Commission staff on a case by case basis. The interference potential of proposed assignments will be evaluated considering parameters such as antenna height, effective radiated power, terrain irregularities, and market conditions.

TABLE B-1: CO-CHANNEL SEPARATIONS BETWEEN COMMON ANTENNA SITES IN NORTHERN CALIFORNIA

North Latitude	West Longitude	Site Name	Site Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
38-03-40	122-36-17	Big Rock Ridge	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X			X	X	X	X	X	X										
37-55-44	122-35-11	Mt. Tamalpais	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X			X	X	X	X	X	X										
37-50-57	122-29-56	Wolfback Ridge	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X						X												
37-52-54	121-55-05	Mt. Diablo	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X	X								
37-51-12	122-12-30	Grizzley Peak	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X			X	X	X	X	X	X										
37-52-58	122-13-11	Vollmer Peak	6	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X									
37-51-00	122-11-30	Roundtop	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X									
37-43-33	122-24-52	Clay Jones Bldg	8	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X			X			X												
37-41-21	122-26-08	San Bruno Mtn.	9	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X						X												
37-24-39	122-18-20	Skeggs Peak	10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X		X										
37-19-13	122-08-33	Black Mountain	11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X		X										
37-10-37	121-54-24	Mt. Umunnum	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X		X										
37-07-09	121-49-58	Mt. Chual	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X		X										
37-06-40	121-50-29	Loma Prieta	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X		X										
36-31-45	121-36-24	Toro Peak	15										X	X	X	X	X	X	X												X						
37-29-15	121-52-03	Mission Ridge	16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X	X	X	X									
40-15-46	122-05-37	Tuscan Buttes	17																	X	X	X	X	X	X												
39-51-50	121-41-20	Forest Ranch	18				X		X	X										X	X	X	X	X	X												
39-12-17	121-49-02	Sutter Buttes	19	X	X		X	X	X	X	X									X	X	X	X	X	X	X	X										
39-08-01	121-05-58	Wolfe Mtn.	20	X	X		X	X	X	X										X	X	X	X	X	X	X	X										
38-52-15	121-07-39	Chantry Hill	21	X	X		X	X	X	X										X	X	X	X	X	X	X	X	X									
38-24-20	122-06-30	Mt. Vaca	22	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X									
38-01-15	120-35-06	Fowler Peak	23	X	X		X	X	X	X									X			X	X	X	X	X	X	X	X	X							
37-30-31	121-22-26	Mt. Oso	24	X	X		X	X	X	X		X	X	X	X	X			X			X	X	X	X	X	X	X	X	X	X						
37-32-32	120-03-45	Mt. Bullion	25				X		X	X									X					X	X	X	X	X	X	X	X						
37-04-10	119-25-39	Meadow Lakes	26				X																			X	X	X	X	X	X	X	X	X	X	X	X
36-44-38	119-19-59	Bear Mtn.	27				X																			X	X	X	X	X	X	X	X	X	X	X	X
36-18-10	120-24-03	Joaquin Ridge	28																X							X	X	X	X	X	X	X	X	X	X	X	X
36-17-07	118-50-19	Blue Ridge	29																								X	X	X	X	X	X	X	X	X	X	X
35-38-29	118-47-08	Pheasant Hill	30																										X	X	X	X	X	X	X	X	X
35-33-09	118-49-20	Granite Peak	31																										X	X	X	X	X	X	X	X	X
35-17-17	119-30-55	Elk Hill	32																										X	X	X	X	X	X	X	X	X
35-17-27	114-45-48	Mc Krittrick Pk	33																										X	X	X	X	X	X	X	X	X
35-16-51	119-44-52	Mc Krittrick Pk	34																										X	X	X	X	X	X	X	X	X

(c) Except as indicated in (d), SMR trunked systems located in the **State of Washington** at the following locations listed in Table B-2 will be separated from co-channel systems by a minimum of 169 km (105 miles). Locations within one mile of the geographic coordinates listed in the table will be considered to be at that site.

Table B-2

Site name	North latitude	West longitude
Buck Mountain	47-47-06	122-59-30
Capitol Peak	46-58-22	123-08-17
Cougar Mountain	47-32-40	122-06-30
Cultus Mountain	48-25-31	122-08-54
Devils Mountain	48-21-53	122-16-02
Gold Mountain	47-32-52	122-46-52
Grass Mountain	47-12-15	121-47-38
Green Mountain	47-33-41	122-48-27
Gunsite Ridge	48-03-23	121-51-37
Lyman Mountain	48-35-42	122-09-35
Maynard Hill	48-00-59	122-55-31
McDonald Mountain	47-20-12	122-51-26
Mount Constitution	48-40-48	122-50-24
North Mountain	47-19-08	123-20-44
Rattlesnake Mountain	47-28-10	121-49-13
Spar Pole Hill	47-02-52	122-08-35
Squak Mountain	47-30-15	122-03-30
Three Sisters Mountain	47-07-20	121-53-30
Tiger Mountain	47-30-14	121-58-28

(d) **40/22 dBu Shortspacing**. Table B-3 indicates permissible distances between co-channel systems separated by less than 113 km (70 miles). Applicants seeking to be licensed for systems located at distances less than those prescribed in the table are required to secure a waiver and to file with their license application a certificate of service indicating that, concurrent with the filing of the application with the Commission, all co-channel licensees within the applicable area were served with a copy of the application and all attachments thereto. Such licensees served with a copy of the application may file an opposition to the application within 30 days from the date the application is filed.

Table B-3

Distance (km) of Proposed Facility from Existing Facility 1/ 2/

Proposed Facility*

DHAAT**		ERP (watts)								
(m)	(ft)	1000	800	600	500	400	300	200	100	50
30.5	100	108	105	101	98	95	92	87	80	75
61	200	113	112	107	105	102	99	95	89	83
91.5	300	113	113	113	111	108	105	101	95	89
122	400	113	113	113	113	112	109	105	99	93
152.5	500	113	113	113	113	113	112	108	102	97
183	600	113	113	113	113	113	113	110	104	99
213.5	700	113	113	113	113	113	113	113	107	101
244	800	113	113	113	113	113	113	113	109	103
274.5	900	113	113	113	113	113	113	113	112	105
305	1000	113	113	113	113	113	113	113	113	108

* Applicants whose exact ERP and HAAT are not reflected in the table must use the next highest figure shown. Distances shown are in kilometers.

** The DHAAT is defined as the average of the antenna heights above average terrain from 3 to 16 km (2 to 10 miles) from the proposed site along a radial extending in the direction of the existing station and the radials 15 degrees to either side of that radial.

1/ Separations for trunked systems on Santiago Peak, Sierra Peak, Mount Lukas, and Mount Wilson (California) and the locations in the State of Washington listed in § 88.215(c) are 56 km (35 miles) greater than those indicated in the table above. In the event of a conflict between this table and § 88.215(b)(2), the latter will control.

2/ The distances shown are based on a non-overlap of the 22 dBu interference contour of the proposed station with the 40 dBu service contour of the existing station(s). No consideration has been given between the 40 dBu service contour of the proposed station and the 22 dBu interference contour of existing station(s).

(e) **Shortspacing with concurrence**. The separation between co-channel systems may be less than the separations defined above if an applicant submits with its application letters of concurrence indicating that the applicant and each co-channel licensee within the specified separation agree to accept any interference resulting from the reduced separation between their systems. Each letter from a co-channel licensee must certify that the system of the concurring licensee is constructed and fully operational. The applicant must also submit with its application a certificate of service indicating that all concurring co-channel licensees have been served with an actual copy of the application.

(f) **Modification of Short-spaced facility**. A station located closer that the distances provided in paragraphs (a) and (c) of this section to a

co-channel station than was authorized as short-spaced under paragraph (d) of this section will be permitted to modify its facilities as long as the station does not extend its 30 dBu contour beyond its maximum 30 dBu contour (i.e., the 30 dBu contour calculated using the station's maximum power and antenna height at its original location) in the direction of the short-spaced station.

§ 88.219 Trunked and loaded conventional systems on non-SMR frequencies.

40/30 dBu. Trunked systems and conventional systems that have met the loading level necessary for channel exclusivity (see §§ 88.285-88.289) authorized on frequencies in the Public Safety Radio Service (except for those systems that have participated in a formal regional planning process as described in § 88.831), Non-Commercial Radio Service and General Category will be protected solely on the basis of predicted contours. Coordinators will attempt to provide a 40 dBu service contour and to limit co-channel interference levels to 30 dBu over an applicant's requested service area. This would result in a mileage separation of 70 miles for typical system parameters. Applicants should be aware that in some areas, e.g., Seattle, Los Angeles, and northern California, separations greater than 70 miles may be appropriate. Separations may be less than 70 miles where the requested service areas, terrain or other factors warrant reduction. In the event that the separation is less than 70 miles, the coordinator must indicate that the protection criteria have been preserved or that the affected licensees have agreed in writing to the proposed system. Only co-channel interference between base station operations will be taken into consideration. Adjacent channel and other types of possible interference will not be taken into account.

§ 88.223 Non-fully loaded conventional systems.

Conventional systems authorized on frequencies in the Public Safety Radio Service (except for those systems that have participated in a formal regional planning process as described in § 88.831), Non-Commercial Radio Service, and General Category that have not met the loading levels necessary for channel exclusivity will not be afforded co-channel protection.

§ 88.227 Separation requirements between 221.0025-221.1975 MHz receivers and 220.8025-220.9725 MHz transmitters.

Base station receivers utilizing assigned frequencies 220.0025-220.1975/221.0025-221.1975 MHz will be geographically separated from

those base station transmitters utilizing frequencies removed 200 kHz or less assigned from 220.8025-220.9725/221.8025-221.9725 MHz as follows:

Table B-4

Separation distance (kilometers)	Effective radiated power (watts)*
0.0 - 0.3	**
0.3 - 0.5	5
0.5 - 0.6	10
0.6 - 0.8	20
0.8 - 2.0	25
2.0 - 4.0	50
4.0 - 5.0	100
5.0 - 6.0	200
Over 6.0	500

* Transmitter peak envelope power must be used to determine effective radiated power.

** Stations separated by 0.3 km or less will not be authorized.

§ 88.229 Finder's preference.

Notwithstanding any other provisions of this Part, any eligible person may seek a dispositive preference for a channel it cannot obtain by direct application because of existing co-channel authorizations. To obtain this preference, finders must submit information that ultimately leads to the recovery of channels for failure of existing licensees to comply with various provisions of §§ 88.131, 88.135 or 88.143. Preferences will not apply to channels encompassed by the National Plan for Public Safety (the 821-824/866-869 MHz channels) or any other channels identified in a Regional Public Safety Plan -- unless the requested preference is accompanied by a written statement from the relevant Regional Public Safety Planning Committee indicating that the committee concurs with the request. This preference may also be awarded to any person who arranges for an existing licensee to voluntarily request license cancellation because the licensee anticipates that it will be unable to timely construct and place its licensed facilities in operation. See §§ 88.131, 88.135, or 88.143. In the instance of such consensual preferences, both finder and licensee must certify that they have neither given nor received any direct or indirect compensation in connection with the requested license cancellation, and the finder will assume the former licensee's deadline for constructing and placing the licensed facility in operation.

(a) **Eligibility for preference** - The recipient of a finder's preference must be eligible for the channels targeted by the finder's request on either a primary basis or through intercategory sharing, except that a finder's preference for occupied channels in the 800 MHz Public Safety Radio Service will only be available to Public Safety Radio Service eligibles.

(b) **Timeliness of finder's request** - A finder's preference request based on a construction or placed-in-operation violation will not be acceptable for filing until 180 days after the construction deadline of the target licensee. The preference will not apply to any case scheduled for regular review during the Private Radio Bureau's normal compliance activities or to any case under Commission review or investigation. A finder that files a timely preference request that results in a channel recovery, and that also files an application with the Commission within 90 days of the award letter date in a form acceptable for filing, will receive a dispositive preference for the recovered channel(s). Where more than one applicant obtains a preference for the same channel(s), we will grant the license to operate on the channel(s) to one of these applicants through our random selection procedures. See § 1.972 of this chapter.

(c) **Contents of request** - The finder's preference request should be mailed to-- Federal Communications Commission, Feeable Correspondence, P.O. Box 358305, Pittsburgh, PA 15251-5305. See § 1.1102(14) of this chapter. The request must contain detailed information to establish a prima facie violation, including: the name and address of the licensee allegedly violating the applicable rules; the licensee's call sign, frequencies and location of the licensed facility; the Commission Rule(s) that the licensee is allegedly violating, including the dates or benchmarks the licensee has failed to meet; and a detailed statement as to the specific basis for the applicant's knowledge that the licensee is violating the rules specified in this section. General and conclusory statements will result in the summary dismissal of any such request. All preference requests must be in the form of a sworn affidavit or a declaration dated and subscribed by the person as true under penalty of perjury as set forth in § 1.16 of this chapter. All preference requests must certify that a complete copy of the preference request has been served on the target licensee. See § 1.47 of this chapter.

CHANNEL/FREQUENCY ASSIGNMENTS

§ 88.231 Channel pairing

(a) In the 152.270-152.465/157.530-157.725 MHz range, the frequencies listed in subpart D may be assigned in pairs with the separation between base and mobile frequencies being **5.26 MHz**. A mobile station may be assigned the frequency that would normally be assigned to a base station for single-frequency operation. However, this single-frequency operation may be subject to interference that would not occur to a two-frequency system.

(b) In the 220-222 MHz band, base station frequencies are taken from the 220-221 MHz band with corresponding mobile and control station frequencies being **1 MHz** higher and taken from the 221-222 MHz band.

(c) In the Public Safety Radio Service, base stations may be authorized to operate **on a secondary basis** on frequencies below 450 MHz that are available to mobile stations.

(d) In the 450-470 MHz band, the frequencies are ordinarily assigned in pairs, with the mobile station transmit frequency **5 MHz** above the paired base station transmit frequency.

(e) In the 470-512 MHz band, the frequencies are ordinarily assigned in pairs with the mobile station transmit frequency **3 MHz** above the paired base station transmit frequency.

(f) In the 806-824/851-869 MHz band, frequencies will be assigned in pairs, with mobile and control station transmitting frequencies taken from the 806-824 MHz band with corresponding base station frequencies being **45 MHz** higher and taken from the 851-869 MHz band.

(g) In the 896-901/935-940 MHz band, frequencies will be assigned in pairs, with mobile and control station frequencies taken from the 896-901 MHz band with corresponding base station frequencies being **39 MHz** higher and taken from the 935-940 MHz band.

§ 88.235 Multichannel systems.

(a) **220-221/221-222 MHz.** Trunked systems will be assigned as paired sets of up to 5 channel pairs, each channel pair separated by 150 kHz from the previous pair.

(b) **806-821/851-866 MHz.**

(1) **Multichannel systems**, including trunked systems, will be assigned as paired sets of up to 5 channel pairs, each channel pair separated by one MHz from the previous pair except

(2) The frequencies 809.75-816/854.75-856 MHz will be assigned as **single channel pairs**.

(3) For stations located within 70 miles of **Chicago** (41-52-28 N, 87-38-22 W), for the frequencies 816-821/861-866 MHz, contiguous assignments are available at 816.0125-816.2375/861.0125-861.2375 MHz, and paired sets of up to 5 channel pairs, each channel pair separated by 900 kHz from the previous pair are available starting at 816.2625/861.2625 MHz.

(4) In the **U.S./Canadian border area** (See § 88.811)

Region	Spacing between channels in a 5-channel group
1, 4, 5, 6	750 kHz
2	450 kHz
3, 7, 8	1 MHz

Region 3 also has ten (10) contiguous channels in each of the two allocated sub-bands.

(c) **896-901/935-940 MHz.**

(1) Multichannel systems, including trunked systems, will be assigned as paired sets of up to 10 channel **contiguous pairs**, for SMRs and 5 channel contiguous pairs in the Non-Commercial Radio Service and General Pool, except

(2) In the Non-Commercial Radio Service and General Pool multichannel systems may be assigned as paired sets of up to 10 channel pairs, each **channel pair separated** by 62.5, 500 or 562.5 kHz from the previous pair.

§ 88.239 Number of frequencies and systems assignable.

There is no limit on the number of frequencies or systems that may be assigned to a licensee except those stated in sections 88.243-88.259 below.

§ 88.243 Limits on shared channels in the 25-50 MHz, 150-174 MHz, and 450-470 MHz bands.

Normally only one frequency or pair of frequencies in the paired mode of operation from the frequencies listed in Subpart D in the Non-Commercial and SMR services, and two frequencies or pairs of frequencies in the paired mode of operation in the Public Safety Radio Service will be assigned on a non-exclusive basis for operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need. Frequencies used for mobile repeater operations do not count towards this limit. There are no limitations on exclusive use overlay licenses beyond those specified at §§ 88.179-88.207.

§ 88.245 Bandwidth reductions in the 150-174 MHz, 421-430 MHz, and 450-470 MHz bands.

(a) On the date a system must meet the spectrum efficiency standards stated in § 88.433, a licensee **keeps one channel pair** per original channel assignment. Other channel pairs automatically cancel, except:

(b) for systems meeting the spectrum efficiency standards at § 88.433 two years before the appropriate deadline, a licensee may **keep up to two unloaded channel pairs**; or

(c) for systems using **non-standard bandwidth**, exceeding the required number of voice links (see § 88.433(a)) by at least 25 percent, a licensee may keep up to two unloaded wideband channel pairs.

§ 88.247 Number of frequencies in the 806-821/851-866 MHz and 896-901/935-940 MHz bands assignable for conventional systems.

(a) Conventional systems of communication will be authorized on the basis of a minimum loading criterion of **70 mobile stations for each channel** authorized.

(b) A licensee may apply for **additional frequency pairs** if its authorized conventional channel(s) is occupied to 70 mobiles. Applications may be considered for additional channels in areas where spectrum is still available and not applied for, even if the already authorized channel(s) is not loaded to 70 mobile units, upon an appropriate demonstration of need.

(c) The **maximum number** of frequency pairs that may be assigned to a licensee for operation in the conventional mode in a given area is five (5).

(d) No licensee in the Public Safety or Non-Commercial Radio Services will be authorized an additional frequency pair for a conventional system within **40 miles** of an existing conventional system, except where:

(1) The additional frequency pair is justified on the basis of the requirements of the proposed user; or,

(2) The licensee's existing frequency pair(s) is loaded to prescribed levels.

(e) No licensee will be authorized frequencies for a conventional system if that licensee is operating an unloaded trunked system or has an application pending for a **trunked system** in the same band as the requested conventional system **within 40 miles** of the requested conventional system.

§ 88.251 Number of trunked frequency pairs and trunked systems in the 806-821/851-866 MHz and 896-901/935-940 MHz bands.

(a) The **maximum number of frequency pairs** that may be assigned at any one time for the operation of a trunked radio system is twenty, except the maximum number of frequency pairs that will be assigned from the 806-821/821-866 MHz band to an SMR applicant at any one time is five. The maximum number of frequency pairs that will be assigned from the 896-901/935-940 MHz band to an SMR applicant at any one time is ten.

(b) No licensee in the Public Safety or Non-Commercial Radio Services will be authorized an additional trunked system within **40 miles** of an existing trunked system, except where:

(1) The additional trunked system is justified on the basis of the requirements of the proposed user; or,

(2) The licensee's existing trunked system is loaded to at least 70 mobile and control stations per channel; or,

(3) A licensee of an SMR system in the 806-821/851-866 MHz bands seeks authorization to operate an SMR system in the 896-901/935-940 MHz bands.

(c) Except as provided in § 88.287, an applicant seeking to expand a trunked system must have a loading level of 70 mobiles per channel on the existing system that is the subject of the expansion request.

§ 88.255 Wide-area operations in the 806-821/851-866 MHz and 896-901/935-940 MHz bands.

(a) **Wide area systems** may be authorized on an appropriate showing of need to eligibles in the Public Safety or Non-Commercial Radio Services. Remote or satellite stations of wide area systems in the Public Safety Radio Service or by essential public service utilities may be authorized on a primary basis if such stations are the first to be authorized in their area of operation on the frequency or group of frequencies. Remote or satellite stations of wide area systems by other licensees will be authorized only on a secondary, non-interference basis to co-channel licensees. To determine system loading, the total number of mobile units and control stations operating in the wide-area system will be counted with respect to the total number of base station frequencies assigned to the system.

(b) **Regional, statewide, or ribbon configuration systems** may be authorized upon an appropriate showing of need to eligibles in the Public Safety or Non-Commercial Radio Services . In a ribbon, regional or statewide system, a mobile station will be counted for channel loading purposes only for the base station facility in the geographic area in which it primarily operates. If this cannot be determined, it will be counted fractionally over the number of base station facilities with which it communicates regularly.

§ 88.259 Number of systems authorized in the 220-222 MHz band in a geographical area.

No licensee will be authorized more than one system in the 220-222 MHz band in a single category (i.e., one non-commercial nationwide system [either 5 or 10-channel], one commercial nationwide system, one 5-channel trunked system, one data-only local system of 1-5 channels, one unrestricted non- trunked local system of 1-5 channels, or one public safety/mutual aid local system of 1-5 channels) within 64 kilometers (40 miles) of an existing system authorized to that licensee in the same category, unless the licensee can demonstrate that the additional system is justified on the basis of its communications requirements. For frequencies available in the Non-Commercial Radio Service, only mobiles used by the licensee count towards loading

LOADING STANDARDS

§ 88.271 General.

Mobile loading is the number of mobile stations associated with an authorized base station operation. For purposes of measuring loading, the term "mobile station" includes vehicular and portable mobile units and control stations. Loading is used in this part for several related purposes. It is used to measure the level of usage of base stations and frequencies. In certain cases, if the level of usage as measured by mobile loading does not reach a minimum level by a certain date, then the authorization for channels will automatically cancel. Loading may be used to cap the number of users sharing a particular channel in a geographic area. Loading may be used to justify channel exclusivity by a licensee over geographic area. Loading may also be used to determine the maximum number of channels that may be authorized to a licensee in a geographic area.

§ 88.273 Loading standards for the 150-174 MHz and 450-470 MHz bands.

(a) A licensee operating a base station within 100 miles of New York City or Los Angeles (see § 88.1601 for coordinates) with at least 70 mobiles per channel or channel pair, within 100 miles of markets 3-75 listed at § 88.1601 with at least 50 mobiles per channel or channel pair, or 20 mobiles per channel or channel pair at any other site, meets the **loading requirements** for the 150-174 MHz and 450-470 MHz bands. See §§ 88.179-203.

(b) For purposes of this section, **channel is defined** as the maximum amount of spectrum permitted per voice link, pursuant to the spectrum efficiency standards at 88.433 for new and existing systems.

(c) **Overlapping markets**. If a base station is located within both 100 miles of New York or Los Angeles and 100 miles of another of the top 75 markets listed at § 88.1601, then the loading standard for that base station is 70 mobiles per channel or channel pair.

(d) For purposes of this section and § 88.277, loading of **Non-Commercial** licensees selling excess capacity will only include those mobile units for internal use of the licensee.

§ 88.277 Loading standards for EUO wide-area systems.

(a) Wide area systems may be authorized on an appropriate **showing of need**. Remote or satellite stations of wide area systems in the Public Safety Radio Service or by essential public service utilities may be authorized on a primary basis if such stations are the first to be authorized in their area of operation on the frequency or group of frequencies. Remote or satellite stations of wide area systems by other licensees will be authorized only on a secondary, non-interference basis to co-channel licensees. To determine system loading, the total number of mobile units and control stations

operating in the wide-area system will be counted with respect to the total number of base station frequencies assigned to the system.

(b) Licensees not qualifying for paragraph (a) of this section may operate wide area system and have every site protected according to § 88.203. Those **multiple site systems** are subject to the following per channel loading standards:

(1) The loading requirement for a system with two sites more than 50 km (31 miles) apart (and both sites are inside or outside an urban area (161 km (100 mi) of a market listed at § 88.1601), is double that of a single site system.

(2) The loading requirement for a system with three or more sites is [the loading requirement for a single site system] times [the ratio of the total area protected from additional licensing for the multiple site system to the area protected for a single site system]. The ratio used will be a whole number, rounding up for fractions of two-thirds or more.

(3) If some of the base station sites of a system are located in an urban area and others are located within a rural market, then the loading standard is pro rated, based on the proportion of base station sites in each loading category.

§ 88.285 Loading standards for non-rural trunked systems in the 806-824/851-869 MHz and 896-901/935-940 MHz bands.

(a) Each applicant for a trunked system must certify that a minimum of 70 mobiles for each channel authorized will be placed in operation within five years of the initial license grant. Except as provided in paragraph (b) of this section, if at the end of five years a trunked system is not loaded to the prescribed levels and all channels in the licensee's radio service are assigned in the system's geographic area, authorization for trunked channels not loaded to 70 mobile stations cancels automatically at a rate that allows the licensee to retatin one channel for every 100 mobile loaded, plus one additional channel. If a trunked system has channels from more than one radio service, General Category channels are the first channels considered to cancel automatically. All licenses authorized initially before June 1, 1993, and within their original license term or are within the term of a two-year authorization granted in accordance with paragraph (b) of this section are subject to this condition. A licensee that has had authorized channels cancelled due to failure to meet the above loading requirements will not be authorized to obtain additional channels to expand the same system for a period of six months from the date of cancellation.

(b) For trunked SMR systems licensed in the 896-901/935-940 MHz band, if at the end of the initial five-year license term the licensee of such a trunked system has not satisfied the loading requirements of paragraph (a) of this section, the licensee requesting renewal of its license will be granted a renewal for only a two-year period. Regardless of the date of the two-year renewal, the licensee will be required to comply fully with the minimum

requirements set forth in paragraph (a) of this section at the end of the two-year renewal term.

§ 88.287 Loading standards for rural trunked systems in the 806-824/851-869 MHz band.

In rural areas, a licensee of a trunked system may request to increase its system capacity by five more channels than it has constructed without meeting the loading requirements specified in § 88.285. A rural area is defined for purposes of this section as being beyond a 100-mile radius of the designated centers of the following urbanized areas, as well as those areas that have a waiting list. The identified urbanized areas are: New York, NY; Los Angeles, CA; Chicago, IL; Philadelphia, PA; San Francisco, CA; Detroit, MI; Boston, MA; Houston, TX; Washington, DC; Dallas-Fort Worth, TX; Miami, FL; Cleveland, OH; St. Louis, MO; Atlanta, GA; Pittsburgh, PA; Baltimore, MD; Minneapolis-St. Paul, MN; Seattle WA; San Diego, CA; and Tampa-St. Petersburg, FL. The coordinates for the centers of these areas are referenced in § 88.1601. Where waiting lists determine whether an area is rural, the designated centers of those areas will be identified on the actual waiting lists released by the Commission. If a waiting list is later established in a rural area, licensees who have acquired additional channels pursuant to this paragraph will be subject to the automatic cancellation provisions for non-urban systems (see § 88.285) at the end of one year from the date the area first appears on a Commission waiting list, or at the end of their license term, whichever is longer.

§ 88.289 Loading standards for conventional systems in the 806-824/851-869 MHz and 896-901/935-940 MHz bands.

Where an applicant shows that a channel will be loaded to 70 mobile stations, that channel will be made available to that applicant for its exclusive use in the area in which it proposes to operate. If the showing made justifies the assignment of more than one channel to the applicant, additional frequencies will be authorized. Where a licensee does not load a channel to 70 mobiles the channel will be available for assignment to other licensees.

§ 88.293 Loading standards for the 470-512 MHz band.

(a) Except as provided in paragraph (b) of this section, the **maximum channel loading** on frequencies in the 470-512 MHz band is as follows:

(1) 50 units in the Public Safety Radio Service.

(2) 70 units in the Non-Commercial Radio Service.

(3) 90 units for SMRs.

(b) If a licensee has **exclusive use of a frequency**, then the loading standards in paragraph (a) may be exceeded. If it is a shared channel, the

loading standards can be exceeded upon submission of a signed statement by all those sharing the channel agreeing to the increase.

(c) Loading standards will be applied in terms of the number of units **actually in use or to be placed in use** within 8 months following authorization. A licensee will be required to show that an assigned frequency pair is at full capacity before it may be assigned a second or additional frequency pair. Channel capacity may be reached either by the requirements of a single licensee or by several users sharing a channel. Until a channel is loaded to capacity it will be available for assignment to other users in the same metropolitan area. Following authorization, the licensee must notify the Commission either during or at the close of the 8 month period of the number of units in operation. In the Non-Commercial Radio Service, if the base station facility is to be used by more than a single licensee, the frequency assigned to it will not be reassigned for use by another facility in that metropolitan area for a period of 12 months, provided that the facility is constructed within 90 days from the date of the first grant, meets the loading standards to at least 50 percent within 9 months, and meets all loading standards within 12 months.

FREQUENCY COORDINATION

§ 88.305 Frequency coordination requirements.

Except for applications listed in paragraph (d) of this section, each application for a new frequency assignment, for a change in existing facilities as listed in § 88.87(a), or for operation at temporary locations in accordance with § 88.95, must include a showing of frequency coordination as set forth below. An application to reinstate a license expired for more than thirty (30) days will be considered as a request for a new frequency assignment.

(a) The coordination must include **a statement from an applicable frequency coordinator** recommending specific frequencies. The coordinator's recommendation may appropriately include comments on technical factors such as power, antenna height and gain, terrain, and other factors that may serve to mitigate potential interference. The specific frequencies must be available for assignment in accordance with loading standards and mileage separations contained in this part.

(b) Any **recommendation is advisory** in character and is not an assurance that the Commission will grant a license for operation on that frequency. Therefore, applicants are strongly advised not to purchase radio equipment operating on specific frequencies until a valid authorization has been obtained from the Commission.

(c) Applications for facilities near the **Canadian border** north of line A or east of line C in Alaska may require coordination with the Canadian government. See Section 1.955 of this chapter.

(d) **Exceptions**. The following applications need not be accompanied by evidence of frequency coordination:

(1) Applications for frequencies below 25 MHz.

(2) Applications for a Federal Government frequency.

(3) Applications for fixed operations in the 72-76 MHz band. See 88.1189.

(4) Applications for a frequency to be used for developmental purposes.

(5) Applications requesting a frequency designated for itinerant operation only.

(6) Applications for radiolocation operations.

(7) Applications for SMR only frequencies. See 88.621.

(8) Applications indicating license assignments such as change in ownership, control or corporate structure if there is no change in technical parameters.

(9) Applications for mobile stations if the frequency pair is assigned to a single system on an exclusive basis in the proposed area of operation.

(10) Applications for control stations operating below 470 or above 800 MHz and meeting the requirements of § 88.67(a)(2).

(11) Applications for frequencies in the 216-220, 220-222 and 1427-1435 MHz bands.

(12) Applications timely-filed by recipients of a finder's preference, where the applicant intends to operate at the same site location, and with the same technical parameters as the prior licensee.

(13) Applications for Innovative Shared Use Radio operations.

(e) The following applications need not be accompanied by evidence of frequency coordination, but a copy of these applications must be sent to an applicable frequency coordinator at the same time that they are sent to the Commission: Applications for modification of license that involve a change in the number of mobile transmitters or paging receivers from that authorized as required by § 88.87(a). Frequency coordination is necessary, however, when there is a change in authorized stations pursuant to § 88.87(b).

§ 88.309 Interservice use of frequencies in the 150-174, 421-430, and 450-470 MHz bands.

Frequencies listed as available for eligibles in the Non-Commercial Radio Service are available for inter-category sharing by SMRs under the following conditions:

(a) There are **no SMR or General Pool frequencies** available in that same frequency band, and

(b) the channels are reassigned from a **bona fide** Non-Commercial or Public Safety eligible licensed and **operating for at least five years** on that channel, and

(c) for Non-Commercial and Public Safety systems licensed before [Date of the Report and Order], the new and old licensee must certify that the **system manager has not been provided financial compensation** resulting from the sale of the system. Provision of any compensation to the system manager resulting from the sale of the system will result in automatic cancellation of the license.

§ 88.313 Interservice use of frequencies in the 806-821/851-866 MHz and 896-901/935-940 MHz bands.

Frequencies listed as available for eligibles in the Public Safety Radio, Non-Commercial Radio and SMR Services are available for inter-category sharing in the 806-821/851-866 MHz band and in the Public Safety and Non-Commercial Radio Services in the 896-901/935-940 MHz band under the following conditions:

(a) Any channel in the 806-821/851-866 MHz and 896-901/935-940 MHz bands will be available to eligible applicants in the **Public Safety and Non-Commercial Radio Services** if there are no frequencies in that band in their own category and no public safety systems are authorized on those channels under consideration to be shared.

(b) Channels in the Non-Commercial Radio Service in the 806-821/851-866 MHz band will be available to **fully-loaded SMR systems** if no 806-821/851-866 MHz SMRS category frequencies are available. Evidence must be provided that the SMR applicant has sufficient users to warrant the authorization of additional channels. If channels are available, the SMR licensee will be authorized no more than one channel more than its current loading warrants.

(c) Channels in the 851-854.750 MHz band are available to **fully-loaded trunked systems** for expansion subject to the conditions at § 88.737.

(d) If, as a result of the **addition of General Category channels**, an applicant obtains the maximum number of channels possible (one channel more than current loading warrants), and if the applicant is on the SMR waiting

list for the geographic area in which it receives the channels, the applicant forfeits its position on the waiting list for that band and market.

(e) Channels in the SMR Service category will be available to **fully-loaded Non-Commercial systems** if frequencies in that band in their own categories are not available. Evidence must be provided that the applicant has sufficient users to warrant the authorization of additional channels. See § 88.91. If available, the licensee will be authorized no more than one channel more than its current loading warrants.

(f) The applicant must submit a statement from its own category coordinator that frequencies are not available in that category, and **coordination** is required from the applicable out-of-category coordinator.

(g) The out-of-category licensee must operate by the **rules applicable** to the category to which the frequency is allocated.

(h) The frequencies 861.0125-861.2375, 862.0125-862.2375, 863.0125-863.2375, 864.0125-864.2375, 865.0125-865.2375 MHz are available on a co-primary basis to stations in **Basic Exchange Telephone Radio Service** as described in Part 22 of the Commission's Rules.

MISCELLANEOUS

§ 88.317 Protection of certain radio receiving locations.

(a) Any applicant for a new permanent base or fixed station, or for a modification of an existing authorization that would change the frequency, power, antenna height, directivity, or location within the boundaries described in subparagraph (5) of this section must notify the Director, **National Radio Astronomy Observatory**, P.O. Box 2, Green Bank, W. Va. 24944, in writing, of the technical parameters of the proposal.

(1) The notification must be made prior to, or simultaneously with, the filing of the application with the Commission.

(2) The notification must state the geographical coordinates of the antenna, antenna height, antenna directivity, proposed frequency, type of emission, and effective radiated power.

(3) After receipt of such applications, the Commission will allow a period of 20 days for comments or objections in response to the notifications indicated. If an objection to the proposed operation is received during the 20-day period from the National Radio Astronomy Observatory for itself or on behalf of the Naval Radio Research Observatory, the Commission will consider all aspects of the problem and take whatever action is deemed appropriate.

(4) The provisions of this paragraph do not apply to applications for mobile, temporary base, or temporary fixed stations.

(5) The area of concern for the National Radio Astronomy Observatory or the Naval Radio Research Observatory is the area bounded by 39°15′ N. on the north, 78°30′ W. on the east, 37°30′ N. on the south, and 80°30′ W. on the west.

(b) **Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado.** Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the research laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40°07′50" N. Latitude, 105°14′40" W. Longitude, resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Table B-5

Frequency range	Field strength (millivolt per meter) in authorized bandwidth of service	Power flux density<1> (dBW per square meter) in authorized bandwidth of service
Below 540 kHz	10	65.8
540 to 1600 kHz	20	59.8
1.6 to 470 MHz	10	65.8
470 to 890 MHz	30	56.2
Above 890 MHz	1	85.8

<1>Equivalent values of power flux density are calculated assuming a free space characteristic impedance of 377 ohms.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

(i) All stations within 2.4 km (1.5 mi);

(ii) Stations within 4.8 km (3 mi) with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 16 km (10 mi) with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of the Table Mountain Receiving Zone;

(iv) Stations within 80 km (50 mi) with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, Colorado 80303; telephone (303) 497-6548, in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization that may be granted that, in fact, delivers a signal at the site in excess of the field strength specified herein.

(c) **Protection for Federal Communications Commission monitoring stations**:

(1) Applicants in the vicinity of an FCC monitoring station for a radio station authorization to operate new transmitting facilities or changed transmitting facilities that would increase the field strength produced over the monitoring station over that previously authorized are advised to give consideration, prior to filing applications, to the possible need to protect the FCC stations from harmful interference. Geographical coordinates of the facilities that require protection are listed in § 0.121(b) of the Commission's Rules. Applications for stations (except mobile stations) that will produce on any frequency a direct wave fundamental field strength of greater than 10 mV/m in the authorized bandwidth of service (-65.8 dBW/m^2 power flux density assuming a free space characteristic impedance of 120 times pi, or 377, ohms at the referenced coordinates, may be examined to determine the extent of possible interference. Depending on the theoretical field strength value and existing root-sum-square or other ambient radio field signal levels at the indicated coordinates, a clause protecting the monitoring station may be added to the station authorization.

(2) In the event that the calculated value of the expected field strength exceeds 10 mV/m (-65.8 dBW/m^2) at the reference coordinates, or if there is any question whether field strength levels might exceed the threshold value, advance consultation with the FCC to discuss any protection necessary should be considered. Prospective applicants may communicate with: Chief, Field Operations Bureau, Federal Communications Commission, Washington, D.C. 20554, Telephone (202) 632-6980.

(3) Advance consultation is suggested particularly for those applicants who have no reliable data that indicates whether the field strength or power flux density figure indicated would be exceeded by their proposed radio facilities

(except mobile stations). In such instances, the following is a suggested guide for determining whether an applicant should coordinate:

(i) All stations within 2.4 km (1.5 mi);

(ii) Stations within 4.8 km (3 mi) with 50 watts or more average effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Monitoring Stations;

(iii) Stations within 16 km (10 mi) with 1 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station;

(iv) Stations within 80 km (50 mi) with 25 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the Monitoring Station.

(4) Advance coordination for stations operating above 1000 MHz is recommended only where the proposed station is in the vicinity of a monitoring station designated as a satellite monitoring facility in Section 0.121(b) of this chapter and also meets the criteria outlined in paragraphs (2) and (3) of this section.

(5) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Federal Communications Commission or modification of any authorization that will cause harmful interference.

§ 88.321 Shared use of radio stations.

Licensees of radio stations authorized under this rule part may share the use of their facilities. A station is shared when persons not licensed for the station use the facilities for their own purposes pursuant to the licensee's authorization. Shared use of a radio station may be either on a private carrier basis or by selling of excess capacity. See §§ 88.17 or 88.15(c).

(a) Shared use is **permitted** only by SMR licensees, and by Non-Commercial licensees selling excess capacity (see § 88.15(c)), and may be on a for-profit basis.

(b) **Responsibility**. The licensee of the shared radio station is responsible for assuring that the authorized facility is used only by persons and only for purposes consistent with the requirements of this rule part. The licensee of the shared radio station is responsible for exercising effective operational control over all mobile stations that communicate with the base station.

(c) **Interconnection**. When stations subject to this part are shared, arrangements for interconnection with the PSTN must be made with a duly authorized carrier on a non-profit cost sharing basis. When the interconnection costs are shared, cost sharing records must be maintained and the costs must be distributed at least once a year. A report of the cost

distribution must be placed in the licensee's station records and made available to participants in the sharing and the Commission upon request.

(d) **End user licensing.** End users of shared systems that have control stations that require FAA clearance, (see §§ 17.7 - 17.17 of this chapter), or that may have a significant environmental effect, as defined by § 1.1307 of this chapter, or that are located in a "quiet zone", as defined by § 88.317, must be individually licensed for such control stations prior to construction or operation. All other end users' operations may be conducted under the authority of the base station licensee. All end users, however, continue to be responsible to comply with our Rules. An end user that operates on more than one system will be deemed, when communicating with the other system, to be temporarily under the authority of the system on which it is operating and, for that period, the licensee of the other system must responsibility for proper operation of the end user's mobile station(s).

Subpart C - Technical Standards and General Operating Requirements

§ 88.401 Scope.

This subpart sets forth technical standards for equipment and general operating requirements for stations authorized in the frequency bands governed by this part. Technical standards include provisions for equipment type acceptance, emission classifications, bandwidth limitations, modulation requirements, emission masks, power limitations, frequency stability and spectrum efficiency standards. General operating requirements include operating modes, types of communications, and licensee responsibilities.

TECHNICAL STANDARDS

§ 88.405 Type acceptance.

(a) Except as specified in paragraph (b), each transmitter utilized for operation under this part and each transmitter marketed as set forth in Subparts I and J of Part 2 of the Commission's Rules must be of a type that is included in the Commission's current Radio Equipment List as **type accepted for use under this part**.

(b) **Exceptions**. Type acceptance for equipment utilized under this part is not required for transmitters used in developmental operations pursuant to § 88.1401 or for transmitters operating in the 1427-1435 MHz band.

(c) **Restrictions on equipment's external controls**. Except as provided in paragraph (d) of this section, transmitters designed to operate above 25 MHz will not be type accepted for use under this part if the operator can program and transmit on frequencies, other than those programmed by the manufacturer, service or maintenance personnel, using the equipment's external operation controls.

(d) Transmitters having frequency programming capability and that are designed to operate above 25 MHz are **exempt from paragraph (c)** of this section if the design of such transmitters:

(1) Is such that transmitters with external controls normally available to the operator must be internally modified to place the equipment in the programmable mode. Further, while in the programmable mode, the equipment must not be capable of transmitting. The procedures for making the modification and altering the frequency program must not be made available with the operating information normally supplied to the end user of the equipment; or

(2) Requires the transmitter to be programmed for frequencies through controls normally inaccessible to the operator; or

(3) Requires equipment to be programmed for frequencies through use of external devices or specifically programmed modules made available only to service/maintenance personnel; or

(4) Requires equipment to be programmed through cloning (copying a program directly from another transmitter) using devices and procedures made available only to service/maintenance personnel.

(e) The requirements of paragraphs (c) and (d) of this section **will not apply** if the equipment has been designed and manufactured specifically for **aircraft use**.

(f) Equipment marketed for public safety operation in the 821-824/866-869 MHz bands must have the capability to be programmed for operation on the **mutual aid channels** as designated in § 88.883.

§ 88.409 Emission classifications.

(a) Unless specified elsewhere in this part, stations will be authorized emissions as provided for in the following paragraphs.

(b) **Explanation of emission symbols**.

The first symbol indicates the type of modulation on the transmitter carrier.

A - Amplitude modulation, double sideband with identical information on each sideband.
F - Frequency modulation.
G - Phase modulation.
J - Single sideband with suppressed carrier.
P - Unmodulated pulse.

The second symbol indicates the type of signal modulating the transmitter carrier.

0 - No modulation.
1 - Digital modulation, no subcarrier.
2 - Digital modulation, modulated subcarrier.
3 - Analog modulation.

The third symbol indicates the type of transmitted information.

A - Telegraphy for aural reception.
B - Telegraphy for machine reception.
C - Facsimilie
D - Data, telemetry, and telecommand.
E - Voice.
N - No transmitted information.

(c) **Voice operations below 25 MHz**. Stations will normally be authorized J3E emission for voice operations. Travelers Information Stations operating pursuant to § 88.1093 will be authorized A3E emission.